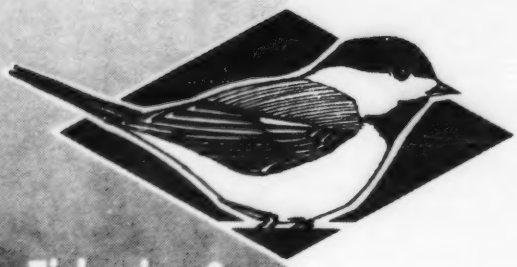

Fisheries & Wildlife Management Division

RESOURCE STATUS AND ASSESSMENT BRANCH

Burrowing Owl Trend Block Survey and Monitoring, Brooks and Hanna Areas

D. Scobie
and
R. Russell

Alberta Species at Risk Report No. 8

Alberta
SUSTAINABLE RESOURCE DEVELOPMENT

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Abstract

Surveys were conducted in the Brooks (K-blocks) and Hanna (H-blocks) areas during June12-21, 2000. Nine (9) burrowing owl nest sites were located in the K-blocks, and 2 nests in the H-blocks. Specific location details for all nests found have been removed from this document to provide additional nest site and landholder confidentiality.

Acknowledgements

Appreciation is extended to the staff of Avocet Environmental (Dave Scobie, Corey Scobie, Rob Sissons, Joel Nicholson and Darcey Shyry), Operation Grassland Community (Julie Hauser), the Eastern Irrigation District and all private landholders in Special Areas for allowing the continuation of surveys. Angie Fraz and Pat Patterson (Alberta Sustainable Resource Development, formerly Alberta Environment) provided assistance for the productivity searches. Darcey Shyry provided the updated tables. Michelle MacLean and Arlen Todd (Alberta Sustainable Resource Development) provided editorial assistance. The Alberta Species at Risk Program (Alberta Sustainable Resource Development) provided funding.

Disclaimer

The opinions and recommendations expressed are those of the authors, and not necessarily those of Alberta Sustainable Resource Development.

INTRODUCTION (please refer to Shyry 1999.)

STUDY AREA

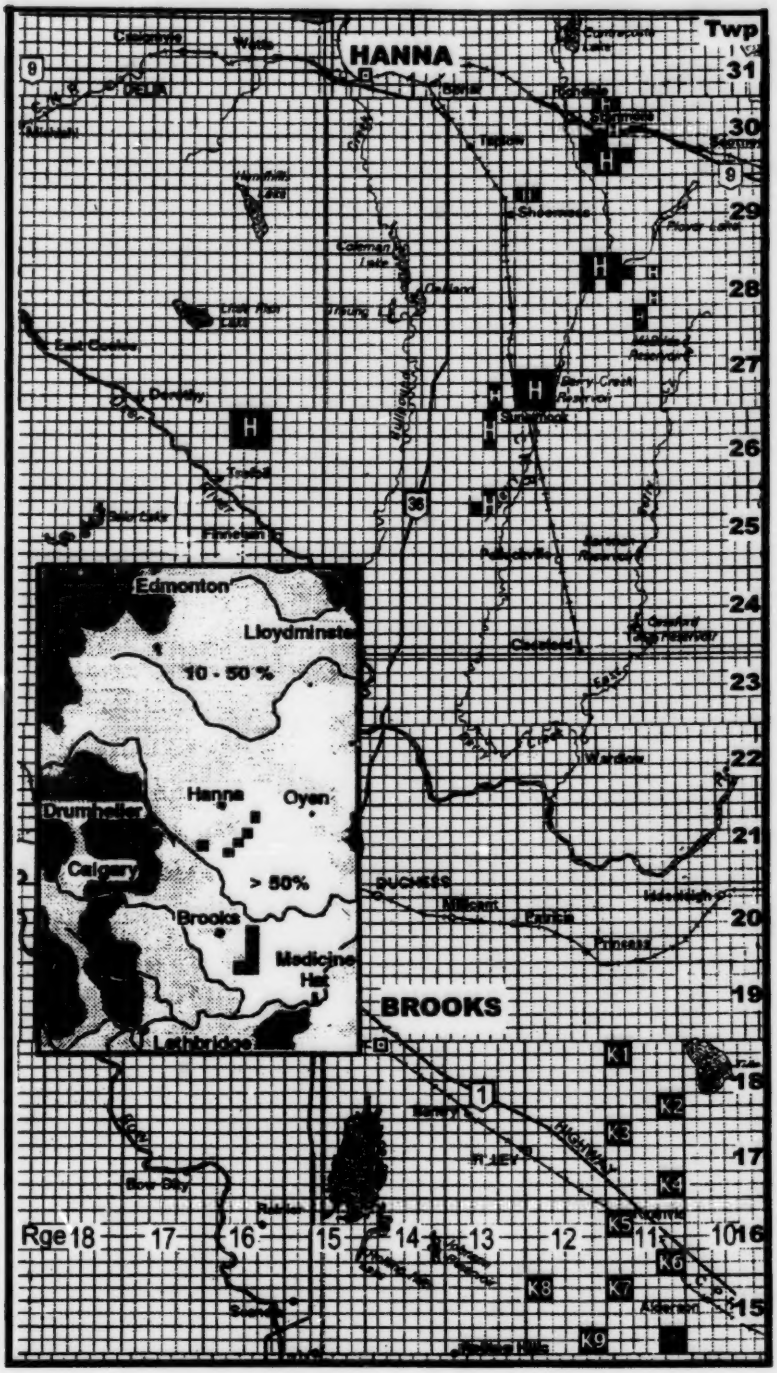


Figure 1. Location of trend blocks in Brooks and Hanna. Inset shows survey areas in respect to remaining percentage of native prairie (adapted from Shyry 1999).

METHODS (adapted from Shyry 1999)

Although the same methodology applies to both Brooks and Hanna study areas they will be separated for ease in data presentation.

BROOKS AREA (K-BLOCKS)

The 10 survey blocks in the Brooks District are comprised of 160 quarter sections. They are named "K" for Kininvie Lake and have been monitored in 1994, 1995, 1997, 1998, 1999 and 2000. Only 128 quarters were surveyed in 1993. All K-blocks fall within the Eastern Irrigation District.

HANNA AREA (H-BLOCKS)

The 8 survey blocks in the Hanna, or "H" area are comprised of 109 quarter sections. The H-blocks have been monitored in 1991, 1993, 1994, 1997, 1998, and 2000. The H-blocks are on lands occupied by 21 individual landholders.

BURROWING OWL SURVEY PROTOCOL 2000

This project will commence June 12 and end when completed, presumably within 2 weeks. Search a quarter section (1/4 of a sq. mile, i.e., 1/2 mile by 1/2 mile) at a time, using the middle of roads, road allowances, trails or fence lines as a boundary. Each quarter has an exact GPS location for the center of the quarter. This makes for 16 quarters per "block" and taking all blocks together is enough area to make up ~ 5% of the Wildlife Management Unit. Record any IN BLOCK and OUT OF BLOCK sightings.

1. Two observers are required per quarter. Choose the elevated points strategically for best visibility roughly 1-200 m apart. Shut off quad, wait 5 minutes to let the effect of disturbance subside, while making a 360° pan of the quarter with aid of binoculars or spotting scope. Play the taped primary call for 5 min; scan the area during call. Place the caller above the cargo box and rotate the speaker in each direction equally. Now examine nests/roosts or possible sightings before going on to the next quarter.
2. Avoid rainy days or days with wind speeds greater than approximately 20 km/hr. B-4 on the Beaufort Windscale. Optimum conditions should be between 06:00 and 13:00 hrs.
3. When no young are seen, the minimum requirement for counting a nest should be a burrow with enough signs (feathers, pellets, legs, jaws etc) to indicate nesting. Evidence may also include: the presence of nest material (dung) in the burrow entrance, the presence of prey, many pellets or prey parts, loose soil across the breadth of the burrow floor from owls entering or leaving. Record all pertinent owl evidence and explain if this is a nest or not. Record a Global Position System (GPS) Waypoint (WPT) in North American Datum (NAD) 27 (Canada) using the Universal Transverse Mercator (UTM) format.

4. To maximize the amount of information obtained, record additional data on plots including landscape, human occupation, and habitat features, and % visibility. Record in addition to burrowing owl (BUOW), the following other species presence/absence: ferruginous hawk (FEHA), Swainson's hawk (SWHA), short-eared owl (SEOW), Baird's Sparrow (BASP), upland sandpiper (UPSA), loggerhead shrike (LOSH), long-billed curlew (LBCU) and any other uncommon fauna.
5. The data sheet is designed for 4 sections per sheet (16 quarters). Conduct 2 – 800 m Richardson's ground squirrel transects per block recording used and all burrows either side of the quad up to 1 meter away.
6. When the observers discover owls after the 10-min. observation period, record them anyway, but make a clear note to explain where they were, how they were found and why they were missed.
7. Adherence to the established protocol ensures that bias is minimized between observers and different years.
8. A second visit to the nest site is required in mid-July to count the number of young. Return to each of the located nest sites and install an ID marker pin 1 m away from the head of the burrow (area opposite the mound).
9. Provide accurate and complete data sheets, detailed expense accounting, and Project Summary by end of July.

RESULTS

Table 1. Results of K-block burrowing owl 2000 survey.

WPT	DATE	K #	TOTAL # OWLS	BURROW NUMBER	PRODUCTIVITY SEARCH DATES	TOTAL OWLS	YOUNG SEEN	NEST 2000	NEST 1999
BO0006	12-Jun	1	2	A5776	7-Jul	1	0	y	n
BO0007	12-Jun	2	2	A5799	9-Jul	11	9	y	y
BO0008	12-Jun	2	2	A5781	18-Jul	5	3	y	y
BO0009	12-Jun	2	2	A5800	7-Jul	7	6	y	n
BO0011	13-Jun	3	1	A5797	7-Jul	0	0	n	y
BO0012	13-Jun	3	1	A5778	7-Jul	6	3	y	n
BO0013	14-Jun	5	1	A5767	18-Jul	5	4	y	y
COURT98	14-Jun	5	1	A5768	7-Jul	8	7	y	y
BO0010	14-Jun	6	2	A5773	7-Jul	8	6	y	y
0016	14-Jun	6	1	off	7-Jul			off	
0010	21-Jun	8	1	off	7-Jul			off	
BO0014	17-Jun	9	2	BWC 078	7-Jul	9	7	y	n
TOTAL BIRDS OBSERVED				18		59	45		
TOTAL BIRDS IN BLOCK				16		AVERAGE	5.0	y = 9	y = 6
TOTAL BIRDS OFF BLOCK				2					
TOTAL LOCATIONS				12				y =	yes
ONLY LOCATIONS INSIDE K BLOCKS				10				n =	no
OFF BLOCK TOTAL									
0016	14-Jun		1						
0010	21-Jun		1						
			2						
MISSED IN SURVEY		K -BLK	TOTAL						
(reported by various observers)			# OWLS						
COURT98	6/19/99	5	1						
	TOTAL		1						
Observers:	K-BLOCK								
R. Russell	2, 4, 6, 8								
D. Shyry	2, 4, 6, 8								
D. Scobie	1, 3, 5, 7, 9, 10								
C. Scobie	1, 3, 5, 7, 9								
R. Sissons	10								
Observers:	Productivity Counts								
R.Russell	2, 6, 9								
P. Patterson	2, 6, 9								
D.Scobie	1, 3, 5, 2, 6								
A.Fraz	1, 3, 5								
NO YOY WERE OBSERVED DURING K-BLOCK SURVEY 2000									
45	YOY WERE OBSERVED IN PRODUCTIVITY SEARCHES								
6	2000 BURROWS WERE MARKED								

Table 2. Results of H-block burrowing owl 2000 survey.

WPT	DATE	H #	TOTAL	BURROW	PRODUCTIVITY SEARCH			
			# OWLS	NUMBER		TOTAL	YOUNG	NEST
					DATES	OWLS	SEEN	2000
H2BO02	17-Jun	2	2	2407-32071	6-Jul	7	6	y
H2BO01	17-Jun	2	2	2407-32438	6-Jul	6	4	y
						13	10	y = 2
						AVERAGE	5.0	
TOTAL BIRDS OBSERVED				4				
TOTAL BIRDS IN BLOCK				4				
TOTAL BIRDS OFF BLOCK				0				
TOTAL LOCATIONS				2				
ONLY LOCATIONS INSIDE H BLOCKS				2				
MISSED IN SURVEY		H -BLK	TOTAL					
(reported by various observers)			# OWLS					
AMOCO 1	6-Jun	6	6					
SCOBIE 1	6-Jul	6	7					
	TOTAL		13					
Observers: H-BLOCK			Observers: Productivity Counts					
Joel Nicholson			Joel Nicholson					
Julie Hauser								
Corey Scobie								
No YOY were observed during H-Block survey 2000								
10	YOY were observed in Productivity Search							
2	2000 BURROWS WERE MARKED							

Table 3. Land not surveyed in H-blocks in 2000.

H block	Reason
H2	Landowner denied access, saying he did not want anyone prowling around on his land, suspect he had owls as 2 nests found on land to immediate South
H2	As above
H3	Cultivated
H6	Landowner denied access, saying he did not want anyone to know if there were owls on his land due to the "laws out there today", he also feels that the harrassement of the owls by biologists etc has contributed to their decline and they are "starting to come back once people are leaving them alone"
H6	As above
H6	As above
H6	As above
H6	As above
H6	As above
H6	As above
H6	As above
H8	Cultivated
H8	Cultivated
H8	Cultivated
H8	Cultivated

TOTAL QUARTERS NOT SURVEYED = 33

Table 4. Dates of trend block surveys.

Year	Hanna	Brooks
1991	July 5 – July 23	No Survey
1993	July 8 – July 23	June 21 - July 20
1994	July 8 – July 15	June 21 - June28
1995	No Survey	June 19 - July 28
1997	July 14 – July 24	June 7 - June 27
1998	July 2 – July 11	June 17 - June25
1999	Not Surveyed	June 14 – June 19
2000	June12 – June 21	June 12 – June 21

Table 5. Number of nests observed during surveys.

	1991	1993	1994	1995	1997	1998	1999	2000
Brooks		6	2*	12	14	10	10	9
Hanna	23	14*	9		2	4		2*

*Not complete survey (less area surveyed).

Figure 2. Nests per 100 km^2

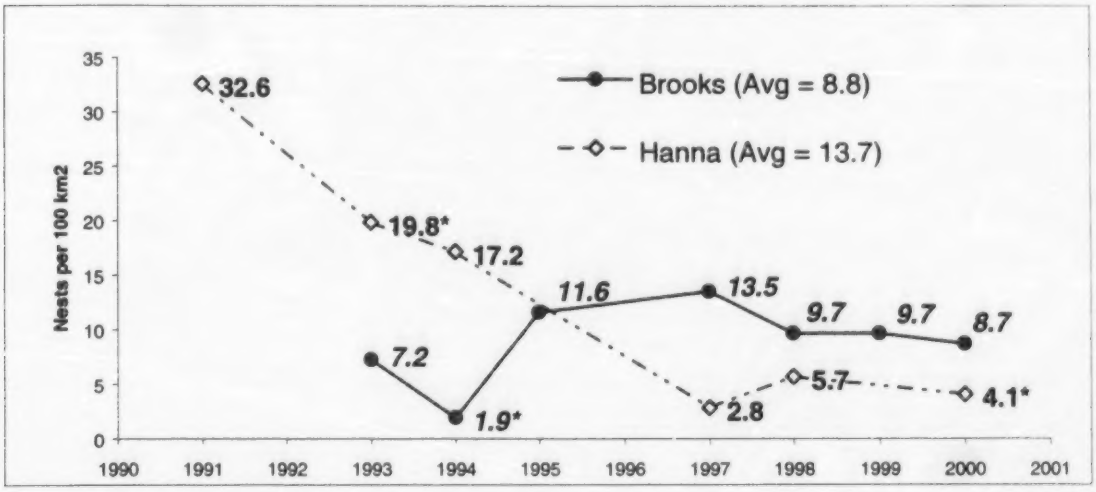


Figure 3. Brooks K-block trend (linear regression).

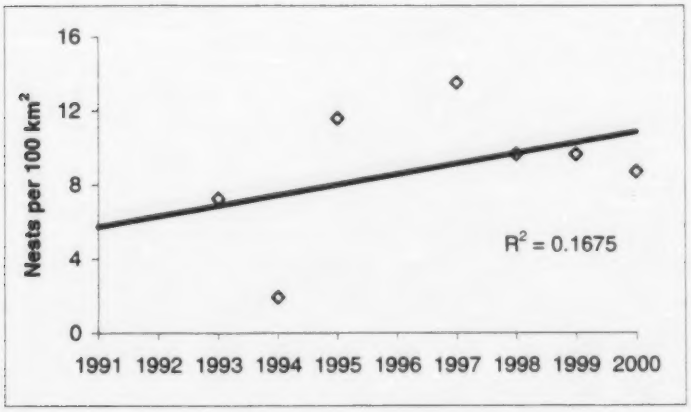


Figure 4. Hanna H-block trend (linear regression).

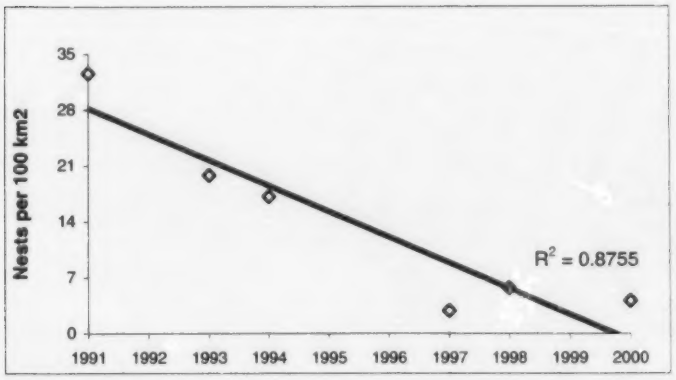
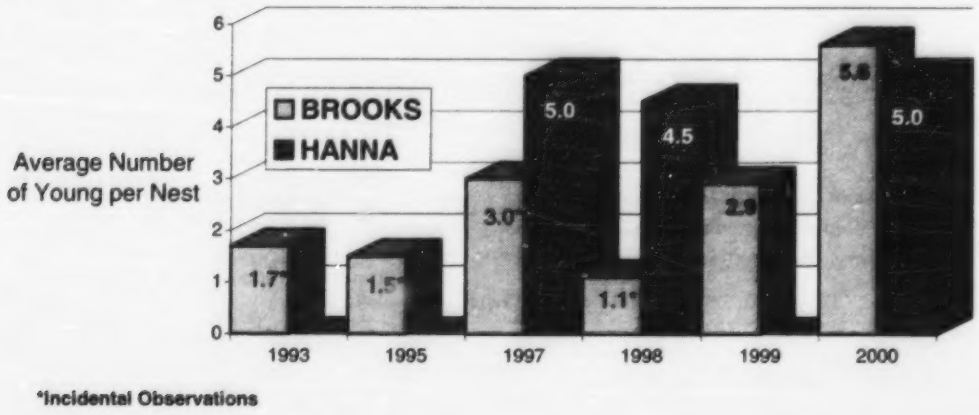


Figure 5. Average number of juvenile owls observed per successful nest site.



*Incidental Observations

Table 6. Average number of juvenile owls observed per successful nest site.

	1993	1995	1997	1998	1999	2000
BROOKS	1.7	1.5	3	1.1	2.9	5.6
HANNA	N/S	N/S	5	4.5	N/S	5

N/S = Not Surveyed

DISCUSSION

There were several problems encountered while doing the H-blocks. Out of the 109 quarter sections, 33 were not searched as detailed in Table 3. Access was denied for 26 of the quarter sections and the remaining 7 were under cultivation. Two nests were found during the survey. Two additional nests were detected later. One was located near pipeline construction in an area where access had been denied. The other nest was found within a previously searched area bringing the total of known nests in the H-blocks to four.

Portions of the southern K-blocks were subject to a violent hailstorm June 12 or 13, 2000. This may have caused adult mortality on some nests and therefore possible lower productivity. The severity of the hail storm was evident by flattened vegetation, injured and dead birds found during surveys and deep "pot-marking" noted on bare earth mounds. Initial investigations of waterfowl mortality found hundreds dead from hail damage. Four days during the survey period were lost due to poor weather (i.e., wind and rain).

One nest in K5 has proven to be troublesome for a variety of observers as it has not been detected for 3 years. This nest was originally reported after the survey had been completed in 1998. Missing the owls during the survey could be attributed to topography or habituation to the call playback.

In 1999, an effort was made to permanently mark any nest sites that could be located in the K-blocks from 1997-1999. This practice was continued in 2000 with 6 burrows being marked. One

nest in K2 (#A5799) was reported by a reliable source as being active in 1999. The nest, shown in Figure 8, was struck by tragedy on July 13 when the female was found dead as a suspected road mortality. Over a 2-week period, the 9 young were supplementary fed with 20 small mammals obtained through trapping and purchases from a local pet store. The number of owlets that survived to fledgling is unknown.

RECOMMENDATIONS

- The survey should be repeated in 2001 for both the K and H-blocks.
- Eliminate cultivated blocks from H-block surveys.
- Historic nest sites should be checked before the observers leave the area.
- Collect more biological, geophysical information on the trend blocks.
- Develop Arcview® Geographical Information System (GIS) themes for K and H-blocks.
- Richardson's ground squirrel and other incidental observations should be evaluated.
- Keep an up to date telephone list of landholders for the H-blocks.
- Send out thank you cards and a simple survey summary to landholders. This would explain the survey and educate landholders on the status of the burrowing owls in their area. This may also help with access in future years. Some of the landholders did not seem to be aware that their property had been in this type of survey for many years.

Figure 6. Part of the burrowing owl survey crew 2000 (left to right D. Shyry, R. Sissons, R. Russell and D. Scobie).

Figure 7. Surveying for burrowing owls in K8.

Figure 8. K-2 nest #A5799.

LITERATURE CITED

Shyry, D. T. 1999. A summary report on Burrowing Owl (Athene cunicularia) population trend surveys in southern Alberta: 1991-1998. Alberta Environment, Wildlife Management Division, Occasional Paper, Alberta Natural Resources Service, Edmonton, AB. 16 pp.